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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,989	05/23/2000	Charles M. Rice III	6029-4356	1745

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THOMPSON COBURN, LLP  
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ST LOUIS, MO 63101

EXAMINER

WORTMAN, DONNA C

ART UNIT	PAPER NUMBER
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1648

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/576,989

Applicant(s)

RICE ET AL.

Examiner

Donna C. Wortman, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5/13/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9,12-17,29,61,62,69,70,72-75 and 87 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,9,12-17,29,61,62,69,70,72,73 and 87 is/are rejected.
- 7) ☒ Claim(s) 7,8,74 and 75 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

The indicated allowability of claims 1, 3-9, 12-17, 29, 61, 62, 69, 70, 72-75 and 87 is withdrawn in view of the newly issued reference, US Patent No. 6,630,343 to Bartenschlager. Rejections based on the newly cited reference follow.

This application is a continuation-in-part of application 09/034756. As the parent application does not disclose polynucleotides comprising NS5A adaptive mutations, the pending claims are entitled to the filing date of the instant application, May 23, 2000.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 61, 62, 69, 70, 72, 73, and 87 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,630,343, to Bartenschlager. Since US Patent 6,630,343 issued from an application filed on March 31, 2000, it is available under 35 U.S.C. 102(e) as a reference. Bartenschlager discloses a polynucleotide comprising a non-naturally occurring HCV sequence that is capable of productive replication in a host cell, or is capable of being transcribed into a non-naturally occurring HCV sequence that is capable of productive replication in a host cell, where in the HCV sequence comprises, from 5' to 3' on the positive sense nucleic acid, a functional 5'NTR, at least one polyprotein coding region that is capable of replicating HCV RNA, and a functional HCV 3'NTR, wherein the polynucleotide also comprises an adaptive mutation in the

NS5A coding region that confers improved cell culture characteristics to said polynucleotide, anticipating claim 1. Bartenschlager also discloses use of double stranded DNA, vectors, and the human liver cell line Huh-7 to replicate the HCV polynucleotide, anticipating the subject matter of claims 61, 62, 69, 70, 72, and 73, and discloses polynucleotides that further include a mutation in the NS3 or NS4B coding region, anticipating the subject matter of claim 87. See e.g., Bartenschlager, col. 9, line 42-col. 11, line 24; Example 7 and Example 8; Table 1; Table 3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-6, 12-17, and 29 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent No. 6,630,343 to Bartenschlager, cited and applied above. While Bartenschlager does not report

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transfection efficiencies in percentages, the transfection efficiencies achieved by Bartenschlager reasonably appear to be the same as, or only slightly different from, those recited in claims 3-6 and 29, since Bartenschlager reports high efficiency replication of his HCV constructs in transfected cells. See, e.g., col. 10, lines 53-67 and Table 2. While Bartenschlager does not specify the location of adaptive mutations in terms of proximity to ISDR, deletion of all or part of the ISDR, or the exact location in the NS5A using the same location numbering scheme as Applicant's, the mutations reported by Bartenschlager appear to be the same as, or only slightly different from those recited in instant claims 12-17 since they are located in the NS5A and have the same adaptive effect in cell culture. See, e.g., Tables 1-3.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartenschlager as cited above. It would have been obvious to one of ordinary skill in the art to have produced HCV that is impaired in its ability to cause disease and transform cells, i.e., to have produced attenuated HCV because Bartenschlager suggests doing so. See col. 8, lines 59-67.

Claim 29 is objected to because of the following informalities:

Claim 29 lacks a period at the end.

Appropriate correction is required.

Claim 7, 8, 74 and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 7, 8, 74 and 75 are free

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of the art since Bartenschlager does not teach or fairly suggest non-hepatic host cells comprising the polynucleotides of the invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna C. Wortman, Ph.D. whose telephone number is 571-272-0913. Until 31 March 2004, the examiner can normally be reached on Monday-Thursday, 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 571-272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Donna C. Wortman, Ph.D.  
Primary Examiner  
Art Unit 1648

dcw